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GEOPHYSICAL VARIABLES AND BEHAVIOR: IX. EXPECTED CLINICAL CONSEQUENCES OF CLOSE PROXIMITY TO UFO-RELATED LUMINOSITIES

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Summary.—Transient and localized plasma-like luminosities associated with intense electromagnetic fields appear to be systematically associated with tectonic strain within the earth's crust. Although contact proximity to these UFO-like luminosities is fatal, less terminal encounters have generated many religious and cosmic references. Unfortunately, the biobehavioral effects produced by these hazardous exposures have not been considered seriously. One hypothesis is that close-encounter experiences displayed near a luminosity are evoked by direct stimulation through current induction within the observer's brain. Because of the architectural and electrical characteristics of temporal lobe structures, their functions should dominate clinical profiles. Whereas the immediate experience would involve dream-like sequences, terror, perceptual changes, depersonalization, vestibular alterations, auditory sensations, and profound meaningfulness, post-episodic effects would include amnesia, time loss, confabulation, crisis suggestibility, and electroconvulsive shock symptoms. Progressive personality deterioration could be characterized by enhanced religiosity, "sense of the personal," a compulsion to proselytize, affective disorders and modifications of memory from before the event.

The existence of highly localized ($\sim$100 m^2), transient ($\sim$1 ksec.) and intense energetic processes dominated by electromagnetic (EM)-like characteristics has been supported by both experimental and correlational evidence. These processes, which are manifested *primarily* as luminous displays, have been called odd comets, luminosities, sky serpents, angels, mysterious airships, and (more recently) UFOs (unidentified flying objects). One hypothesis (Persinger, 1976; Persinger & Lafrenière, 1977) states that these processes are generated by tectonic strain within the earth's crust. Indeed the occurrence of such luminosities is correlated with imminent seismic activity (Persinger, 1980, 1981, 1982), and miniature equivalents of these displays can be produced in controlled laboratory conditions.[2]

Although the physical mechanisms by which single luminous events are maintained must still be specified, many appear to be plasma-like conditions associated with *very* intense magnetic field boundaries. Once generated, movement of specific events reflects the relative conductivity and electric charge characteristics of the local topography. In the field situation, for example,

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luminous displays are reported near power lines, radio towers, hilltops, isolated trees, moving automobiles, and other charge collectors (including human beings). Direction of movement is also influenced by local geology and strain-release patterns such as local fault lines. Color, spin, and complex movements appear related to short-term alterations in the stability of the process.

Despite the infrequent, brief, and localized nature of these energetic processes, the occasional contiguity between these events and human presence is expected. Historically, many of these encounters appear to have evoked realistic experiences that were labelled with great personal or religious significance. Today they are frequently paired with positive qualities such as friendly aliens and related god surrogates. However, for the most part, close proximity to these luminosities should evoke a variety of potentially hazardous biological and behavioral changes. This paper briefly outlines the predicted patterns of these consequences.

Fig. 1 displays the spectrum of possible biobehavioral effects that could be evoked by the luminous display. No doubt there would be great variability in the actual response profiles depending upon the size of the luminosity and its stage of stability. Whereas size (or density) of the luminosity would influence the magnitude of the electromagnetic energy to which the observer is exposed, the stability would tend to determine the emission frequency, e.g., ionizing radiation, microwave or extremely low frequency (ELF) fields. Distance would contribute to both conditions.

At the farthest distance, when the observer is outside the local field disruptions associated with the luminosity, the primary experience would be an

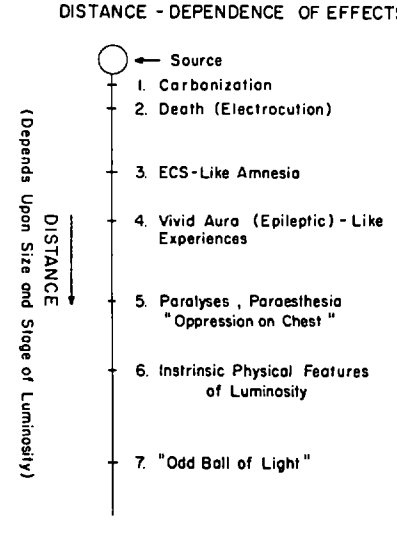
DISTANCE - DEPENDENCE OF EFFECTS
Source
1. Carbonization
2. Death (Electrocution)
3. ECS-Like Amnesia
4. Vivid Aura (Epileptic) - Like Experiences
5. Paralyses, Paraesthesia "Oppression on Chest"
6. Instrinsic Physical Features of Luminosity
7. "Odd Ball of Light"
DISTANCE
(Depends Upon Size and Stage of Luminosity)

FIG. 1. Various biobehavioral consequences of close proximity to a luminous UFO-type display as a function of distance

"odd shape of light with unusual kinetics." As the observer approached it, intrinsic physical features of the luminous condition would become obvious. Geometric lines or apparent "internal structure" could be discerned. Such features have been reported in miniature plasma-like conditions (Cook, 1982).

Since the nervous system functions primarily through intricate patterns of biogenic electromagnetic signals, direct effects from the luminosity upon the observer's experience would begin with motion within the context of the field. Large electrostatic components would induce sensations of tingling, piloerection, and oppression in the chest (Persinger, 1974).

As the person approached the luminosity (or it approached the observer), more intense current induction within the observer from the time-varying magnetic fields (by the luminosity) would begin to alter brain function. Although the electric currents would be induced throughout brain tissue, the temporal lobe (especially, the depth structures such as the amygdala and hippocampus) would be preferentially affected because of the lower electrical firing threshold (MacLean, 1970) and its position in the skull prone to discharge paths between the luminosity and the standing or sitting observer.

The stimulation of the temporal lobe structures would modify consciousness, perceptual processing, and memory. Perceptual experiences would be more vivid equivalents of the images generated by the localized electrical seizures associated with temporal lobe epilepsy (Ervin, 1975) or generated by direct surgical stimulation of temporal lobe structures (Weingarten, Cherlow, & Holmgren, 1977). These vivid aura-like experiences would be dominated by themes comparable to those produced in the clinical setting and would include terror, strangeness, and perceptual alterations.

At critical threshold values, depending upon the characteristics of the induced current, electroconvulsive (ECS) intensities would be achieved. The observer would seizure and become unconsious. He would awake with total or partial amnesia of the episode. At very high levels of current induction, the observer might be killed. Postmortem analyses would show symptoms indistinguishable from heart failure or (at more intense values) frank electrocution. Even conservative estimations of energy levels (associated with larger luminosities) indicate that contact proximity could produce total or partial carbonization; only fragments of burned tissue would remain.

Post-episodic biological changes would depend upon the modal emission frequencies. Exposures dominated by ionizing radiation would be followed by classic signs of radiation sickness such as skin burns, erythema, swelling, hair loss, and immunological alterations. Lower frequencies would produce more subtle effects. Fields dominated by electrical components would be localized to superficial regions of the neck and thighs while those dominated by magnetic components would influence the waist and testicular regions (Atoian, 1978).

The most important feature of this hypothesis involves the *origin* of the close-encounter experience. According to this approach, the *electromagnetic-like fields correlated with the UFO event* (1) modify the electrical activity of the observer's brain and (2) *evoke the close-encounter experience.* (No doubt there should be contributions from the deformational or gravitational forces associated with the process, but their biobehavioral profiles are not known.) The specific content of the close-encounter experience is a function of (1) the portion of the brain and body most influenced, (2) the verbal label applied to the event before the stimulation, and (3) the person's reinforcement history.

Immediate effects from the direct stimulation would be dominated by temporal lobe functions. Consequently, close-encounter experiences would include vivid dream-like sequences, déjà vu sensations, and depersonalization (out-of-body reports). There would be an elevated number of vestibular sensations (vertigo, moving up or down, floating, walking up stairs), and auditory experiences. The latter would be a type of "hearing without words" description (e.g., "telepathy") and would be dominated by intense knowing and meaningfulness. Religious implications are expected. The experience would seem as "real" (perhaps more so) as any other; technically speaking, the observer would *not* be lying.

Fragmentary or complete "memory" of the experience would be influenced by variables relevant to more routine clinical settings. The intensity, distribution, and hemispheric asymmetry (Serafetinides, Walter, & Cherlow, 1975) of the induced current would primarily determine the degree of amnesia and hence the indirect contribution of confabulation. Assuming appropriate current parameters, the actual experience would be influenced by personality variables. People who are more field dependent or display poorer reality testing would be prone to having these experiences (Trimble, 1981).

Specific details will be loaded by the verbal label paired with the event (or its context) at the time of the stimulation. Whereas the words "spaceship" or "flying saucer" would evoke a variety of images conditioned to that label, words such as god, devil, ghost, or angel would evoke their appropriate associations. Portions of the body stimulated by the luminosity would be incorporated into the experience much like the appearance of somatic or visceral stimulation within dream content. Considering the general pathways of electric discharge within a standing human, common patterns would involve suffocation pains (cardiorespiratory failure), sensations of being probed (surface discharge arcing) and stimulation of the shoulder and neck (due to the shapes of the atlas and axis vertebrae).

The aftereffects of intense direct stimulation of the brain by the magnetic fields generated by the luminosity would also imply temporal lobe dysfunction. Typical symptoms would include confusion and disorientation, time loss (hours

to days), partial or total amnesia, and fugue states. Malaise, headache, nausea, physical exhaustion, and inappropriate emotions, typical of electroconvulsive shock (Breggin, 1979), would occur in most instances. Because connections are copious between the hippocampal formation and the locus coeruleus, disturbances in dream content may continue for several weeks. In some instances, dreaming could be released into non-REM periods. Autonomic displays (crying, sweating, tachycardia), similar to those evoked by the initial exposure, could be elicited in subjects during the first few presentations of situations similar (ideation, suggestion) to the original event.

Of particular importance to the problems of establishing the construct validity of a close-encounter report would be the tendency to incorporate post-episodic information as if it were a part of the original experience (Butters & Cermak, 1975). Because there is interference with memory consolidation, discussion immediately (within seconds) after the event may be confused with the event. This effect would confound any conclusions drawn from the alleged similarity of experiences by multiple witnesses of the same event. Once consolidated, regression hypnosis and polygraphic procedures would not yield what "actually" happened. In fact, the witness would be very susceptible to the subtleties of the question formats and demand characteristics of the interviews, i.e., "crisis suggestibility."

One complication that has not been discussed in the close-encounter literature but should be expected in light of modern neurochemical theories, is the *modification of memories consolidated before the traumatic event by the event.* Since memory is highly correlated with protein sequences and the amino acids composing these sequences undergo constant turn-over, statistical interference with these reactions could alter memory patterns. Since memory is the reference for experience, alterations would not be apparent to the person, although close friends and relatives might notice behavioral changes. Significant modifications characterized by bizarre or atypical "memories" would be a source of anxiety to the person.

Another serious consequence of close encounters to luminosities would involve long-term and progressive deleterious personality changes. If the temporal lobe was permanently damaged, as indicated by increased incidence of electrical seizures (without convulsions) or morphological alterations, then the temporal lobe personality could develop. Classic behaviors (Valenstein & Heilman, 1979; Bear & Fedio, 1977) would be sense of the personal (interpreting trivial events, such as telephone rings, as proof of alien presence), hypergraphia (detailed daily notes and diaries), viscosity, and most of all, the intensification of religiosity (mystical delusions and nascent philosophical interests) coupled with the compulsion to proselytize ("spread the word"). These same symptoms may be displayed, with less bizarre content, in alleged scientific pursuits.

As mentioned by Slater and Beard (1963) and Valenstein and Heilman (1979), concerning the clinical analogues of these witnesses, they could still display normal social, emotional, and intellectual behaviors. The development of more serious complications would be preceded by bouts of automatic behaviors and amnesia (e.g., the person misplaces an object) followed by covert auditory instructions whereby the location of the object is "revealed" to the person. These symptoms may be prodrome to "repeater experiences" where the person reports close-encounter episodes without proximity to luminous events. These behaviors may be used inappropriately by clinicians to dismiss all previous experiences of the patient.

No doubt, many close-encounter-type experiences (concerning gods, demons, or aliens) could be produced by temporal lobe dysfunctions not initiated by close proximity to UFO-related luminosities. Similar behavioral themes, especially in context of the popular psychology for extraterrestrial god surrogates, would be generated by electrical seizures in the temporal lobe or by chemical changes induced by personality crises. The occurrence of the close-encounter theme would depend heavily upon the perceptual context (driving a car versus lying in a hospital bed) at the time of the dysfunction. These cases would be a source of noise for researchers attempting to differentiate patients who have been exposed to actual luminosities.

Because the observer's perception and memory would be modified, close-encounter experiences will appear as profound and for the most part terrifying realities. The resulting disruption of the person's world view (and the social antagonism that usually follows) could be psychologically devastating. To date, except for outright rejection or implicit acceptance of the experience's validity, no tractable explanation has been available to clinicians who must deal with this problem. This hypothesis may stimulate the development of therapeutic procedures through which the trauma of the close-encounter experience could be treated.

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